

# Awareness and perceptions related to COVID-19 among cancer patients: A survey in oncology department

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## Abstract

**Introduction:** Today, COVID-19 pandemic is still the most critical problem in the global health agenda. Since the awareness of the public in general and particularly awareness of those with comorbidities, such as cancer, determine the rate of mortality, the primary goal of this study was to assess the knowledge, perceptions and attitude of the patients with cancer towards the COVID-19 pandemic. The secondary objective of this study was also to measure the effect of COVID-19 on cancer patients' ongoing treatments.

**Methods:** This study recruited 300 oncology patients through an outpatient community-based oncology clinic in one of the 30 major cities of Turkey, which had taken a lockdown at weekends during April 2020. A questionnaire measuring the knowledge, attitudes and preventive behaviour was completed by each patient either face-to-face or through telephone survey.

**Results:** In general, participants had a positive attitude towards protective measures. No delay for current cancer treatments or appointments has been observed in 98% of patients. More than half of the patients (52.3%) were using some kind of nutritional supplement to increase their body resistance. Nearly two-third of patients could not identify the three most common symptoms of COVID-19 (fever, cough, dyspnoea), and half of them were not aware of the routes of transmission (by contact and droplets). It was observed that patients with stage 1 cancer were tend to stay at home, while patients with stage 4 cancer were prone to leave their houses for the hospital at a higher ratio. The rate of people leaving houses was significantly higher for male patients and for patients with a university degree, whereas patients who were older than 65 were tend to go only to the hospital when they leave their houses.

**Conclusion:** This study suggests that routine follow-up and guidance for cancer patients seems to provide significant benefit to increase the knowledge and awareness of patients with cancer.

## KEYWORDS

awareness, cancer, COVID-19, oncology, patient care, perception

## 1 | INTRODUCTION

The COVID-19 pandemic is an unexpected and rapidly evolving crisis worldwide. On 30 January 2020, the World Health Organization (WHO) declared a public health emergency for novel COVID-19 disease, which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The novel disease was first emerged in Wuhan, China, in December 2019 and is associated with a variety of presentations ranging from asymptomatic infections to severe viral pneumonia, acute respiratory distress syndrome and even death (Hanna, Evans, & Booth, 2020). While the transmissibility of COVID-19 is estimated as 4.08 (meaning that every case of COVID-19 will create up to four new cases), SARS-CoV-2 has primarily been transmitted between people through respiratory droplets or contact routes (Shi et al., 2020). A recent meta-analysis by Yang et al. reported that the three most common symptoms of COVID-19 include fever (72.4%), cough (55.5%) and dyspnoea (18.8%) (Yang et al., 2020).

Today, the entire world is battling with COVID-19 pneumonia that can be dreadfully lethal in high-risk patient groups. Although the severity of infection and mortality risk can vary, it is known that high mortality is observed in older male patients with medical comorbidities, features that are common in cancer patients. This finding has been supported by Zhang et al., as they have reported that the mortality rate in cancer patients has increased ten times compared to all the reported cases of COVID-19 in China (Oh, 2020; Yang et al., 2020). During this outbreak, the major risk for cancer patients is the challenge to receive necessary medical services due to the risk of infection. While some patients are advised not to visit hospitals due to risk, some patients have already decided not to leave their house due to their fear of infection. As a result, some delays have been observed in getting the treatment, in routine control appointments and in providing continuous care due to the enforced quarantine (Wang & Zhang, 2020). Stronger personal protection provisions and more intensive surveillance in case of infection were among the major strategies recommended by ESMO (European Society of Medical Oncology) guidelines for patients with cancer (Liang et al., 2020). ESMO also advised oncologists to weigh the risks of mortality and morbidity against the magnitude of benefit of intended cancer therapies (Hanna et al., 2020). ESMO guidelines also suggested the incorporation of the value-based prioritisation with the clinical assessments for necessary interventions in order to achieve a multidisciplinary approach in cancer care.

The state of lockdown in many parts of the world has led to a negative impact on individuals' emotions both psychologically and physiologically (Roy et al., 2020). As COVID-19 is a novel disease that shows its devastating effects globally, its emergence and spread caused anxiety, fear and state-of-concern among the general public. Since human behaviour is influenced by people's knowledge and perceptions, their behaviours and actions during COVID-19 pandemic are crucial to control the spread of the novel virus. This is best shown by the increased use of masks and hand sanitisers, resulting in the exhaustion of resources in the markets (Roy et al., 2020). The degree of knowledge and attitude of the public significantly affects

the degree of adherence to personal protective measures and consequently the clinical outcomes. Therefore, it is essential to inform the public, provide guidance and answer the questions about general conceptions in order to help people to manage their fear and take action against COVID-19 (Roy et al., 2020; Wang & Zhang, 2020).

The Turkish Government has taken a number of necessary measures including shutting down schools, closing places where people gather and advising its citizens for voluntary quarantine and social distancing since 11 March 2020, when the first case was declared. As of 26 May 2020, Turkey is ranked as 9th country with 157,814 confirmed cases, and 14th country with 4,369 deaths. The relatively low mortality ratio of Turkey has been attributed to different parameters, mostly believed due to certain prevention measures, and high rates of voluntary quarantine among the public (Satici, Gocet-Tekin, Deniz, & Satici, 2020). However, it should be noted that conflicting orders by the government of Turkey was given such as not issuing a complete country-wide lockdown or allowing international flights until some point of time. Currently, at our Oncology Department, no cases of COVID-19 infection have been identified. However, as a precautionary measure, delicate modifications have been made for re-scheduling patients' treatments and appointments. For eligible patients, appointments have been moved to online platforms, and lots of effort have been given to inform the patients and to help them cope with the fear and anxiety they might be feeling.

Although there have been studies investigating the level of psychological distress; awareness, fear and perception of different communities related to COVID-19, as of June 1, only one study was conducted particularly in cancer patients which only includes paediatric oncology patients (Casanova et al., 2020). In this perspective, we aimed to measure the awareness, knowledge and perspectives of cancer patients about COVID-19 pandemic in Turkish population. Secondary objective of this study was also to measure the effect of global pandemic on current cancer treatments.

## 2 | MATERIAL AND METHODS

### 2.1 | Survey

A prospective cross-sectional study was conducted using a questionnaire survey to detect changes in attitude and behaviour of cancer patients in response to COVID-19 pandemic (Data S1). It was known that Turkish government had issued a lockdown at weekends in 30 major cities during April 2020. This study was performed in a community-based private hospital's Medical Oncology outpatient clinic that was found in one of the 30 major cities in April 2020. All patients who agreed to participate in the study were surveyed. 300 patients who had appointments in April 2020 were included in this study. The questionnaire was directed to the patients who came to the outpatient clinic for follow-up purposes or for treatment purposes. Patients who did not come to the outpatient clinic for their control appointment in April were interviewed by telephone survey. Sufficient time was given to participants to read, comprehend

and answer all the questions. The demographic characteristics of the patients (age, gender, marriage status, educational status) were asked and recorded. The classification and stage of cancer diagnosis have been taken from the patient records. The questionnaire was developed based on literature research, popular knowledge level of public and expert opinion. The patients were then asked 16 questions about the precautions and risk preventions, the status of their course of treatment and knowledge about symptoms and mode of transmission in COVID-19 pandemic.

## 2.2 | Ethical considerations

Confidentiality of the study participants' information was maintained throughout the study by making the participants' information anonymous and asking the participants to provide honest answers. Informed consent was obtained from each participant prior to participation. The study was performed in accordance with the Helsinki Declaration, and approval for this study procedure was obtained from the local Ethics Committee and Institutional Review Board of the concerned tertiary healthcare institution.

## 2.3 | Statistical analysis

The association between answers for questions was analysed according to patients' age, gender, educational status, cancer stage and their status of appointment (control appointment or treatment appointment). For this purpose, the NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) program was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum and maximum) were used when evaluating the study data. The suitability of quantitative data for normal distribution was tested by Kolmogorov-Smirnov test, Shapiro-Wilk test and graphical evaluations. Student's *t* test was used for comparing two groups of normally distributed quantitative data. In comparison of qualitative data, Pearson chi-square test, Fisher-Freeman-Halton Exact test and Fisher's exact test were used. A *p*-value of less than 0.05 was considered statistically significant. *p* ≤ .05 indicated with one asterisks (\*), while *p* ≤ .01 indicated with two asterisk and *p* ≤ .001 indicated with three asterisks.

## 3 | RESULTS

Among the 300 oncology patients included in the survey, the relative majority were between 44 and 70 years old (ranging between 19 and 92) with the education level was less than high school degree (56.7%) and most of the participants were married (83.3%; Table 1). Primary diagnosis of patients included breast cancer (31.7%), colon cancer (15.7%), lung cancer (13.7%), ovarian cancer (10.7%), gastric cancer (5%) and 71 patients (23.6%) had cancer from different origins than listed above. While the majority of patients had advanced

**TABLE 1** Patient characteristics

N = 300		N	%
Age (years)	Average ± SD	57.39 ± 13.38	
	Min-Max (median)	19–92 (58.5)	
Gender	Female	199	66.3
	Male	101	33.7
Marriage status	Single	50	16.7
	Married	250	83.3
Educational status	Less than high school degree	170	56.7
	High school degree	63	21.0
	University degree	67	22.3
Diagnosis	Breast	95	31.7
	Colon	46	15.3
	Lung	41	13.7
	Ovary	32	10.6
	Gastric	15	5.0
	Others	71	23.7
Stage	Stage 1	25	8.3
	Stage 2	54	18.0
	Stage 3	93	31.0
	Stage 4	128	42.7
Status of patient during therapy	Actively treated	179	59.7
	Routine control	121	40.3

disease (73.6%), most of them (60%) were actively receiving their treatment.

The summary of questionnaire questions and patients' responses is shown in Table 2. Almost all patients (97.3%) were washing their hands more often than usual. While one third of patients afraid to leave their house, one third of patients left their houses only for hospital during this period, and 96% of patients did not prefer to use public transport due to risk. When the personal precautions have been investigated, it was seen that 77% patients bought a hand sanitiser. While one third of patients never left their house, two third of patients who went out were wearing a mask (63.7%) and one third of them were also wearing gloves (34.3%). About 93% of patients were cleaning the boxes that came from outside and 97% of patients did not accept visitors to their houses.

When the effect of virus on ongoing treatments or appointments was evaluated, no delay has been observed in 98% of patients. More than half of the patients (52.3%) were using some kind of nutritional supplement. The distribution of the types of supplements was diverse; 26.1% of patients were using vitamin supplements, whereas 65.6% of patients declared that they were eating fruits more frequently than usual as a source of vitamin. Other supplements dictated by patients included trotter soup, almond oil, kefir, herbal supplements, nuts and beet. 71.3% patients have reported that it was their own decision to use such supplements, while it was recommended by their doctor to almost 23% of patients. Nearly two third

**TABLE 2** Summary of the survey findings

Survey question	Response	N	%
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	292	97.3
	No	8	2.7
2. Are you going out of the house?	Yes	200	66.7
	No	100	33.3
3. If you are leaving your house, is it for hospital or to go outside?	Never leave the house	100	33.3
	For hospital	109	36.3
	To outside	91	30.3
4. Do you use the public transport?	Yes	12	4.0
	No	288	96.0
5. Have you purchased a hand sanitiser?	Yes	233	77.7
	No	67	22.3
6. When you go out, do you carry a hand sanitiser with you?	Never leave the house	100	33.3
	Yes	116	38.7
	No	84	28.0
7. Do you wear a mask every time you leave home?	Never leave the house	100	33.3
	Yes	191	63.7
	No	9	3.0
8. Do you use gloves when going out?	Never leave the house	100	33.3
	Yes	103	34.3
	No	97	32.4
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	279	93.0
	No	21	7.0
10. Do you accept those who visit you for your illness or other reasons?	Yes	10	3.3
	No	290	96.7
11. Did COVID-19 pandemic cause any delay in your chemotherapy treatment or control?	Yes	6	2.0
	No	294	98.0
12. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	157	52.3
	No	143	47.7
13. What is the type of supplement you are using?	Vitamin	41	26.1
	Fruit	103	65.6
	Trotter soup	5	3.2
	Almond oil	1	0.6
	Kefir	3	1.9
	Herbal supplement	1	0.6
	Nuts	2	1.3
	Beet	1	0.6

(Continues)

**TABLE 2** (Continued)

Survey question	Response	N	%
14. Who recommended the supplement you are using?/ Where did you hear it?	By myself	112	71.3
	From my relative	7	4.5
	From my doctor	36	22.9
	From my pharmacist	2	1.3
15. Do you know the three most common symptoms of COVID-19? (Patients who knew the most common 3 symptoms were marked as yes)	Yes	87	29.0
	No	213	71.0
Fever	Yes	273	91.0
	No	27	9.0
Cough	Yes	251	83.7
	No	49	16.3
Dyspnoea	Yes	100	33.3
	No	200	66.7
16. Do you know the route of transmission of novel coronavirus? (Patients who knew the two most common routes of transmission were marked as yes)	Yes	136	45.3
	No	164	54.7
By contact	Yes	278	92.7
	No	22	7.3
With droplets	Yes	145	48.3
	No	155	51.7

of patients could not identify the 3 most common symptoms and half of them was not aware of the routes of transmission. Dyspnoea was the least known symptom, and although transmission by contact was commonly known, transmission with droplets was not known by half of the patients.

The rate of purchasing hand disinfectants for those aged 55–64 was significantly higher than those aged 65 and above ( $p = .041$ ; Table 3). Also, the rate of leaving houses for hospital appointments rather than going outside was significantly higher for those aged 65 and over ( $p = .01$ ). Male patients tend to leave their house significantly higher than that of women ( $p = .006$ ; Table 4). Also, the ratio of knowing the routes of transmission was significantly higher in the male population compared to the female population ( $p = .044$ ). The rate of going outside of the house was higher in university and high school graduates ( $p = .003$ ). There was no significant correlation between the rates of knowing the three most common symptoms of COVID-19 according to the educational status ( $p > .05$ ). However, the rate of knowing the routes of transmission for novel coronavirus was higher in university graduates ( $p = .002$ ; Table 5).

When patients' responses according to their cancer stages were investigated, it was seen that the rate of leaving their house in patients with stage 4 cancer was strongly higher than the other groups ( $p = .001$ ). When we looked at the reasons for leaving the house according to the stages, the rate of going to the hospital in patients with stage 4 cancer was also strongly higher than the other groups ( $p = .001$ ; Table 6). Again, the rate of buying hand sanitisers was significantly higher in patients with stage 4 cancer ( $p = .022$ ), whereas the rate of cleaning the boxes that came from outside was significantly higher in patients with stage 1 cancer ( $p = .027$ ). The ratio of leaving their houses for hospital purposes rather than outside was extremely significantly higher in actively treated patients ( $p = .001$

for both questions respectively). Also, the rate of hand disinfectant purchase for actively treated patients was higher than the control patients ( $p = .036$ ). Again, the rates of wearing gloves were higher in actively treated patients ( $p = .027$ ; Table 7).

## 4 | DISCUSSION

Today, COVID-19 pandemic is still the most critical problem in the global health agenda (Hanna et al., 2020). Besides it possess a huge risk for overall public, patients who have chronic illnesses or those who are in an immunosuppressive state such as patients

**TABLE 3** The answer distributions of patients according to age groups

		Age (years)				p
		<45 age (n = 46)	45–54 age (n = 73)	55–64 age (n = 88)	≥65 age (n = 93)	
		n (%)	n (%)	n (%)	n (%)	
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	45 (97.8)	70 (95.9)	87 (98.9)	90 (96.8)	<sup>a</sup> .707
	No	1 (2.2)	3 (4.1)	1 (1.1)	3 (3.2)	
2. Are you going out of the house?	Yes	34 (73.9)	54 (74.0)	59 (67.0)	53 (57.0)	<sup>b</sup> .080
	No	12 (26.1)	19 (26.0)	29 (33.0)	40 (43.0)	
3. If you are leaving your house, is it for hospital or to go outside? (n = 200)	Hospital	16 (47.1)	22 (40.7)	33 (55.9)	38 (71.7)	<sup>b</sup> .010**
	Outside	18 (52.9)	32 (59.3)	26 (44.1)	15 (28.3)	
4. Do you use the public transport? (n = 200)	Yes	2 (5.9)	2 (3.7)	1 (1.7)	3 (5.7)	<sup>a</sup> .603
	No	32 (94.1)	52 (96.3)	58 (98.3)	50 (94.3)	
5. Have you purchased a hand sanitiser?	Yes	36 (78.3)	58 (79.5)	76 (86.4)	64 (68.8)	<sup>b</sup> .041*
	No	10 (21.7)	15 (20.5)	12 (13.6)	29 (31.2)	
6. When you go out, do you carry a hand sanitiser with you?	Yes	21 (61.8)	32 (59.3)	34 (57.6)	29 (54.7)	<sup>b</sup> .925
	No	13 (38.2)	22 (40.7)	25 (42.4)	24 (45.3)	
7. Do you wear a mask every time you leave home?	Yes	33 (97.1)	51 (94.4)	55 (93.2)	52 (98.1)	<sup>a</sup> .713
	No	1 (2.9)	3 (5.6)	4 (6.8)	1 (1.9)	
8. Do you use gloves when going out?	Yes	18 (52.9)	27 (50.0)	32 (54.2)	26 (49.1)	<sup>b</sup> .944
	No	16 (47.1)	27 (50.0)	27 (45.8)	27 (50.9)	
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	41 (89.1)	68 (93.2)	82 (93.2)	88 (94.6)	<sup>b</sup> .696
	No	5 (10.9)	5 (6.8)	6 (6.8)	5 (5.4)	
10. Do you accept those who visit you for your illness or other reasons?	Yes	2 (4.3)	4 (5.5)	1 (1.1)	3 (3.2)	<sup>a</sup> .442
	No	44 (95.7)	69 (94.5)	87 (98.9)	90 (96.8)	
11. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	24 (52.2)	38 (52.1)	44 (50.0)	51 (54.8)	<sup>b</sup> .934
	No	22 (47.8)	35 (47.9)	44 (50.0)	42 (45.2)	
12. Do you know the 3 most common symptoms of COVID-19?	Yes	18 (39.1)	23 (31.5)	23 (26.1)	23 (24.7)	<sup>b</sup> .297
	No	28 (60.9)	50 (68.5)	65 (73.9)	70 (75.3)	
13. Do you know the route of transmission of novel coronavirus?	Yes	24 (52.2)	31 (42.5)	46 (52.3)	35 (37.6)	<sup>b</sup> .169
	No	22 (47.8)	42 (57.5)	42 (47.7)	58 (62.4)	

<sup>a</sup>Fisher Freeman Halton Exact Test.

<sup>b</sup>Pearson chisquare test.

\* $p \leq .05$ .

\*\* $p \leq .01$ .

with cancer are at greatest risk of mortality from COVID-19 (Wang & Zhang, 2020). Therefore, it is important to determine the level of awareness and knowledge in such population to address and direct future problems. In this study, we primarily aimed to observe and discuss how well the people with cancer cope with this emerging challenge, rather than aiming to conduct an epidemiological study.

It is reported that receiving anticancer therapies within 14 days prior to infection is an independent poor prognostic factor for COVID-19 with a hazard ratio of greater than 4 (Oh, 2020). Also, it is proposed that a high proportion of cancer patients who acquired the infection had been thought to get infected while they were in the hospital for their cancer treatment (Oh, 2020). Hence, patients

with cancer require specific recommendations and support during COVID-19 pandemic, and a personalised approach for each cancer patient will be a cornerstone to determine the required modifications for their treatment.

This survey was conducted with 300 socio-demographically diverse adults with cancer living in one of the 30 major cities that issued a lockdown at weekends during April 2020 in Turkey. We found that most respondents perceived the threat of the COVID-19 pandemic as serious. Almost all respondents reported that the virus was affecting their daily routine drastically and leading to changes in their already made plans. However, no delay for current cancer treatments or follow-up appointments has been observed in 98% of patients.

**TABLE 4** The answer distributions of patients according to gender

		Gender		p
		Female (n = 199)	Male (n = 101)	
		n (%)	n (%)	
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	193 (97.0)	99 (98.0)	<sup>d</sup> 0.722
	No	6 (3.0)	2 (2.0)	
2. Are you going out of the house?	Yes	122 (61.3)	78 (77.2)	<sup>b</sup> 0.006**
	No	77 (38.7)	23 (22.8)	
3. If you are leaving your house, is it for hospital or to go outside? (n = 200)	Hospital	66 (54.1)	43 (55.1)	<sup>b</sup> 0.887
	Outside	56 (45.9)	35 (44.9)	
4. Do you use the public transport? (n = 200)	Yes	5 (4.1)	3 (3.8)	<sup>d</sup> 1.000
	No	117 (95.9)	75 (96.2)	
5. Have you purchased a hand sanitiser?	Yes	153 (76.9)	81 (80.2)	<sup>b</sup> 0.513
	No	46 (23.1)	20 (19.8)	
6. When you go out, do you carry a hand sanitiser with you?	Yes	76 (62.3)	40 (51.3)	<sup>b</sup> 0.124
	No	46 (37.7)	38 (48.7)	
7. Do you wear a mask every time you leave home?	Yes	119 (97.5)	72 (92.3)	<sup>d</sup> 0.158
	No	3 (2.5)	6 (7.7)	
8. Do you use gloves when going out?	Yes	65 (53.3)	38 (48.7)	<sup>b</sup> 0.529
	No	57 (46.7)	40 (51.3)	
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	185 (93.0)	94 (93.1)	<sup>b</sup> 0.973
	No	14 (7.0)	7 (6.9)	
10. Do you accept those who visit you for your illness or other reasons?	Yes	7 (3.5)	3 (3.0)	<sup>d</sup> 1.000
	No	192 (96.5)	98 (97.0)	
11. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	106 (53.3)	51 (50.5)	<sup>b</sup> 0.650
	No	93 (46.7)	50 (49.5)	
12. Do you know the three most common symptoms of COVID-19?	Yes	57 (28.6)	30 (29.7)	<sup>b</sup> 0.848
	No	142 (71.4)	71 (70.3)	
13. Do you know the route of transmission of novel coronavirus?	Yes	82 (41.2)	54 (53.5)	<sup>b</sup> 0.044*
	No	117 (58.8)	47 (46.5)	

<sup>b</sup>Pearson chisquare test.

<sup>d</sup>Fisher's Exact Test.

\* $p \leq .05$ .

\*\* $p \leq .01$ .

This study tried to observe how the cancer patients adapted to this unexpected time and if they took any action or not. We identified some concerning demographic differences in how individuals took action against COVID-19 such as age, gender, educational status, and the stage and state of their illness. In general, male patients had shown a tendency to leave their houses compared to female patients. Patients who were older than 65 (31%) were prone to stay home and only leave their houses for the hospital than other aged groups. However, the order of lockdown during April 2020 for Turkish citizens who were older than 65 was thought to have a significant effect on this result. While patients with less than high school degree were prone to stay home, patients with university degree observed to have higher ratios of going out. We thought that this significant

ratio might be the result of those people who had to continue working against pandemic. Besides, this result can be interpreted as voluntary quarantine seemed to be applied effectively among cancer patients. Interestingly, it was observed that higher educational status was associated with a better knowledge of routes of transmissions but not with the knowledge of symptoms in cancer patients.

It was observed that patients with stage 1 cancer were prone to stay at home, while patients with stage 4 cancer left their houses for hospital in a higher ratio compared to others. We also observed that actively treated patients continued their treatment and left their houses for hospital, while the ratio of leaving house was less in routine follow-up patients. However, the ratio of leaving their houses other than hospital reasons was higher in follow-up patients. We

**TABLE 5** The answer distributions of patients according to educational status

		Educational status			p
		Less than high school (n = 170)	High school (n = 63)	University (n = 67)	
		n (%)	n (%)	n (%)	
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	166 (97.6)	61 (96.8)	65 (97.0)	<sup>a</sup> .799
	No	4 (2.4)	2 (3.2)	2 (3.0)	
2. Are you going out of the house?	Yes	100 (58.8)	51 (81.0)	49 (73.1)	<sup>b</sup> .003**
	No	70 (41.2)	12 (19.0)	18 (26.9)	
3. If you are leaving your house, is it for hospital or to go outside? (n = 200)	Hospital	61 (61.0)	23 (45.1)	25 (51)	<sup>b</sup> .153
	Outside	39 (39.0)	28 (54.9)	24 (49)	
4. Do you use the public transport? (n = 200)	Yes	2 (2.0)	3 (5.9)	3 (6.1)	<sup>a</sup> .355
	No	98 (98.0)	48 (94.1)	46 (93.9)	
5. Have you purchased a hand sanitiser?	Yes	128 (75.3)	50 (79.4)	56 (83.6)	<sup>b</sup> .366
	No	42 (24.7)	13 (20.6)	11 (16.4)	
6. When you go out, do you carry a hand sanitiser with you?	Yes	54 (54.0)	29 (56.9)	33 (67.3)	<sup>b</sup> .295
	No	46 (46.0)	22 (43.1)	16 (32.7)	
7. Do you wear a mask every time you leave home?	Yes	94 (94.0)	50 (98.0)	47 (95.9)	<sup>a</sup> .612
	No	6 (6.0)	1 (2.0)	2 (4.1)	
8. Do you use gloves when going out?	Yes	49 (49.0)	27 (52.9)	27 (55.1)	<sup>b</sup> .761
	No	51 (51.0)	24 (47.1)	22 (44.9)	
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	159 (93.5)	56 (88.9)	64 (95.5)	<sup>a</sup> .319
	No	11 (6.5)	7 (11.1)	3 (4.5)	
10. Do you accept those who visit you for your illness or other reasons?	Yes	6 (3.5)	1 (1.6)	3 (4.5)	<sup>a</sup> .619
	No	164 (96.5)	62 (98.4)	64 (95.5)	
11. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	83 (48.8)	41 (65.1)	33 (49.3)	<sup>b</sup> .074
	No	87 (51.2)	22 (34.9)	34 (50.7)	
12. Do you know the 3 most common symptoms of COVID-19?	Yes	49 (28.8)	21 (33.3)	17 (25.4)	<sup>b</sup> .605
	No	121 (71.2)	42 (66.7)	50 (74.6)	
13. Do you know the route of transmission of novel coronavirus?	Yes	62 (36.5)	34 (54.0)	40 (59.7)	<sup>b</sup> .002**
	No	108 (63.5)	29 (46.0)	27 (40.3)	

<sup>a</sup>Fisher Freeman Halton Exact Test.

<sup>b</sup>Pearson chisquare test.

\*\* $p \leq .01$ .



**TABLE 6** The answer distributions of patients according to stage of cancer

		Stage				p
		Stage 1 (n = 25)	Stage 2 (n = 54)	Stage 3 (n = 93)	Stage 4 (n = 128)	
		n (%)	n (%)	n (%)	n (%)	
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	23 (92.0)	54 (100)	90 (96.8)	125 (97.7)	<sup>a</sup> .205
	No	2 (8.0)	0 (0)	3 (3.2)	3 (2.3)	
2. Are you going out of the house?	Yes	11 (44.0)	30 (55.6)	59 (63.4)	100 (78.1)	<sup>b</sup> .001***
	No	14 (56.0)	24 (44.4)	34 (36.6)	28 (21.9)	
3. If you are leaving your house, is it for hospital or to go outside? (n = 200)	Hospital	4 (36.4)	9 (30.0)	27 (45.8)	69 (69.0)	<sup>b</sup> .001***
	Outside	7 (63.6)	21 (70.0)	32 (54.2)	31 (31.0)	
4. Do you use the public transport? (n = 200)	Yes	0 (0)	2 (6.7)	1 (1.7)	5 (5.0)	<sup>a</sup> .574
	No	11 (100)	28 (93.3)	58 (98.3)	95 (95.0)	
5. Have you purchased a hand sanitiser?	Yes	19 (76.0)	34 (63.0)	74 (79.6)	107 (83.6)	<sup>b</sup> .022*
	No	6 (24.0)	20 (37.0)	19 (20.4)	21 (16.4)	
6. When you go out, do you carry a hand sanitiser with you?	Yes	5 (45.5)	20 (66.7)	35 (59.3)	56 (56.0)	<sup>b</sup> .606
	No	6 (54.5)	10 (33.3)	24 (40.7)	44 (44.0)	
7. Do you wear a mask every time you leave home?	Yes	10 (90.9)	28 (93.3)	56 (94.9)	97 (97.0)	<sup>a</sup> .442
	No	1 (9.1)	2 (6.7)	3 (5.1)	3 (3.0)	
8. Do you use gloves when going out?	Yes	8 (72.7)	17 (56.7)	31 (52.5)	47 (47.0)	<sup>b</sup> .370
	No	3 (27.3)	13 (43.3)	28 (47.5)	53 (53.0)	
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	25 (100)	45 (83.3)	89 (95.7)	120 (93.8)	<sup>a</sup> .027*
	No	0 (0)	9 (16.7)	4 (4.3)	8 (6.3)	
10. Do you accept those who visit you for your illness or other reasons?	Yes	2 (8.0)	1 (1.9)	3 (3.2)	4 (3.1)	<sup>a</sup> .518
	No	23 (92.0)	53 (98.1)	90 (96.8)	124 (96.9)	
11. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	13 (52.0)	30 (55.6)	52 (55.9)	62 (48.4)	<sup>b</sup> .686
	No	12 (48.0)	24 (44.4)	41 (44.1)	66 (51.6)	
12. Do you know the 3 most common symptoms of COVID-19?	Yes	4 (16.0)	15 (27.8)	35 (37.6)	33 (25.8)	<sup>b</sup> .107
	No	21 (84.0)	39 (72.2)	58 (62.4)	95 (74.2)	
13. Do you know the route of transmission of novel coronavirus?	Yes	10 (40.0)	25 (46.3)	43 (46.2)	58 (45.3)	<sup>b</sup> .953
	No	15 (60.0)	29 (53.7)	50 (53.8)	70 (54.7)	

<sup>a</sup>Fisher Freeman Halton Exact Test.<sup>b</sup>Pearson chisquare test.\* $p \leq .05$ .\*\*\* $p \leq .001$ .

thought that the necessity of continuation of the treatment in high-stage patients and moving the appointments to online platforms are the essential factors determining those ratios.

To take a rapid action and quickly recruit as large sample as possible, we were limited in depth of our survey and in the number of patient sample. While creating this survey, we were led by prior research on virus outbreaks and common public guidelines. We are aware that the outcomes of this study only reflected a snapshot during the pandemic, and we hope that the knowledge of patients is evolving rapidly, leading to increased awareness. A routine follow-up

and guidance for cancer patients seems to provide significant benefit to decrease the fear and increase the knowledge and awareness of patients with cancer. Therefore, we suggest that guidance with specific up-to-date and accurate health information can help to obtain an increased level of awareness and knowledge related to COVID-19 pandemic. Since cancer patients have a higher mortality risk from COVID-19, cancer patients who are in the need of online medical counselling should be considered in a higher priority status compared to other patients and specific attention should be drawn to those critical patients.



**TABLE 7** The answer distributions of patients according to their status during therapy (follow-up patients or treatment patients)

		Status of patient during treatment		p
		Therapy (n = 179)	Control (n = 121)	
		n (%)	n (%)	
1. Do you wash your hands with soap more often than usual due to COVID-19 pandemic?	Yes	174 (97.2)	118 (97.5)	<sup>d</sup> 1.000
	No	5 (2.8)	3 (2.5)	
2. Are you going out of the house?	Yes	138 (77.1)	62 (51.2)	<sup>b</sup> 0.001***
	No	41 (22.9)	59 (48.8)	
3. If you are leaving your house, is it for hospital or to go outside? (n = 200)	Hospital	96 (69.6)	13 (21.0)	<sup>b</sup> 0.001***
	Outside	42 (30.4)	49 (79.0)	
4. Do you use the public transport? (n = 200)	Yes	5 (3.6)	3 (4.8)	<sup>d</sup> 0.705
	No	133 (96.4)	59 (95.2)	
5. Have you purchased a hand sanitiser?	Yes	147 (82.1)	87 (71.9)	<sup>b</sup> 0.036*
	No	32 (17.9)	34 (28.1)	
6. When you go out, do you carry a hand sanitiser with you?	Yes	81 (58.7)	35 (56.5)	<sup>b</sup> 0.766
	No	57 (41.3)	27 (43.5)	
7. Do you wear a mask every time you leave home?	Yes	135 (97.8)	56 (90.3)	<sup>d</sup> 0.027
	No	3 (2.2)	6 (9.7)	
8. Do you use gloves when going out?	Yes	64 (46.4)	39 (62.9)	<sup>b</sup> 0.031*
	No	74 (53.6)	23 (37.1)	
9. Do you clean the food and beverage boxes you bought from the market when you came home?	Yes	167 (93.3)	112 (92.6)	<sup>b</sup> 0.807
	No	12 (6.7)	9 (7.4)	
10. Do you accept those who visit you for your illness or other reasons?	Yes	5 (2.8)	5 (4.1)	<sup>d</sup> 0.531
	No	174 (97.2)	116 (95.9)	
11. Do you use a supplement to increase your body resistance and protect yourself from coronavirus infection?	Yes	86 (48.0)	71 (58.7)	<sup>b</sup> 0.070
	No	93 (52.0)	50 (41.3)	
12. Do you know the 3 most common symptoms of COVID-19?	Yes	53 (29.6)	34 (28.1)	<sup>b</sup> 0.777
	No	126 (70.4)	87 (71.9)	
13. Do you know the route of transmission of novel coronavirus?	Yes	81 (45.3)	55 (45.5)	<sup>b</sup> 0.972
	No	98 (54.7)	66 (54.5)	

<sup>b</sup> Pearson chisquare test.<sup>d</sup>Fisher's Exact Test.

\*p ≤ .05.

\*\*\*p ≤ .001.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

## COMPLIANCE WITH ETHICAL STANDARDS

All procedures performed in studies involving human participants were in accordance with the ethical standards and with the Helsinki Declaration and its later amendments or comparable ethical standards within our institute.

## INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study. We did not receive any financial support for the research, authorship and/or publication of this article.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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